

Course ID: ECE 440 Introduction to Computer Networks-Spring
Prof. Eirini Eleni Tsiropoulou
eirini@unm.edu / (505) – 277 – 5501
326B/ Office Hours: Tuesdays and Thursdays 2:00pm-3:00pm
Lectures: Tuesdays and Thursdays 3:30pm-4:45pm
Department of Electrical and Computer Engineering / University of New Mexico

Homework #4 (100%)

1. Problem P2, Chapter 4 (30%)

Suppose two packets arrive to two different input ports of a router at the same time. Also suppose there are no other packets anywhere in the router

- a. Suppose the two packets are to be forwarded to two different output ports. Is it possible to forward the two packets through the switch fabric at the same time when the fabric uses a shared bus?
- b. Suppose the two packets are to be forwarded to two different output ports. Is it possible to forward the two packets through the switch fabric at the same time when the fabric uses switching via memory?
- c. Suppose the two packets are to be forwarded to the same output port. Is it possible to forward the two packets through the switch fabric at the same time when the fabric uses a crossbar?

2. Problem P8, Chapter 4 (30%)

Consider a router that interconnects three subnets: Subnet 1, Subnet 2 and Subnet 3. Suppose all of the interfaces in each of these three subnets are required to have the prefix 223.1.17/24. Also suppose that Subnet 1 is required to support at least 60 interfaces, Subnet 2 is to support at least 90 interfaces, and Subnet 3 is to support at least 12 interfaces. Provide three network addresses (of the form a.b.c.d/x) that satisfy these constraints.

3. Problem P11 (consider four equal size subnets), Chapter 4 (40%)

Consider a subnet with prefix 128.119.40.128/26. Give an example of one IP address (of form xxx.xxx.xxx.xxx) that can be assigned to this network. Suppose an ISP owns the block of addresses of the form 128.119.40.64/26. Suppose it wants to create four equal size subnets from this block, with each block having the same number of IP addresses. What are the prefixes (of form a.b.c.d/x) for the four subnets?

To be delivered at instructor's office: **30 April 2020**

Good Luck!